

**CLAIMS :**

1. A method of routing data packets to a queue pair,  
5 comprising:  
    receiving a data packet having a header in which one  
    or more IP filter values are identified;  
    identifying a queue pair based on the one or more  
    filter values in the header of the data packet; and  
10 routing the data packet to the identified queue  
    pair.

2. The method of claim 1, wherein identifying the queue pair includes:

15       generating a hash value based on the one or more filter values; and

          retrieving a hash table entry based on the hash value.

20    3.    The method of claim 2, further comprising:  
          determining if a collision bit in the hash table  
          entry is set; and  
          retrieving a collision table entry corresponding to  
          the hash table entry if the collision bit is set.

25           4.    The method of claim 3, further comprising:  
              comparing the one or more filter values in the data  
packet header to filter values in the collision table  
entry; and  
30           identifying the queue pair based on the comparison  
of the one or more filter values in the data packet  
header to the filter values in the collision table entry.

Docket No. AUS920010489US1

5. The method of claim 1, wherein the method is implemented in a host channel adapter set up to support filtering.

5

6. The method of claim 5, wherein the host channel adapter is set up to support filtering by using a Modify HCA verb to enable filtering in the host channel adapter.

10 7. The method of claim 1, wherein the queue pair is a queue pair that is set up to support filtering by using a Modify QP verb to enable filtering.

15 8. The method of claim 7, wherein the Modify QP verb identifies the filter value for each filter type enabled from filter types supported by a corresponding host channel adapter.

20 9. The method of claim 1, wherein the one or more filter values are Internet Protocol over InfiniBand transport and/or network layer filter values.

25 10. The method of claim 1, wherein identifying a queue pair based on the one or more filter values in the header of the data packet includes using a content addressable memory.

30 11. A computer program product in a computer readable medium for routing data packets to a queue pair, comprising:

FOR OFFICIAL USE ONLY

Docket No. AUS920010489US1

first instructions for receiving a data packet having a header in which one or more IP filter values are identified;

second instructions for identifying a queue pair  
5 based on the one or more filter values in the header of the data packet; and

third instructions for routing the data packet to the identified queue pair.

10 12. The computer program product of claim 11, wherein the second instructions for identifying the queue pair include:

instructions for generating a hash value based on the one or more filter values; and

15 instructions for retrieving a hash table entry based on the hash value.

13. The computer program product of claim 12, further comprising:

20 instructions for determining if a collision bit in the hash table entry is set; and

instructions for retrieving a collision table entry corresponding to the hash table entry if the collision bit is set.

25

14. The computer program product of claim 13, further comprising:

instructions for comparing the one or more filter values in the data packet header to filter values in the  
30 collision table entry; and

instructions for identifying the queue pair based on the comparison of the one or more filter values in the

FOUO "SECRET"

data packet header to the filter values in the collision table entry.

16. The computer program product of claim 15, wherein  
the host channel adapter is set up to support filtering  
10 by using a Modify HCA verb to enable filtering in the  
host channel adapter.

18. The computer program product of claim 17, wherein  
the Modify QP verb identifies the filter value for each  
filter type enabled from filter types supported by a  
20 corresponding host channel adapter.

20. The computer program product of claim 11, wherein the second instructions for identifying a queue pair based on the one or more filter values in the header of the data packet include instructions for using a content addressable memory.

21. An apparatus for routing data packets to a queue pair, comprising:

5        means for identifying a queue pair based on the one  
or more filter values in the header of the data packet;  
and

10

means for generating a hash value based on the one or more filter values; and

23. The apparatus of claim 22, further comprising:  
means for determining if a collision bit in the hash  
table entry is set; and

25    24. The apparatus of claim 23, further comprising:  
       means for comparing the one or more filter values in  
       the data packet header to filter values in the collision  
       table entry; and

means for identifying the queue pair based on the  
30 comparison of the one or more filter values in the data  
packet header to the filter values in the collision table  
entry.

25. The apparatus of claim 21, wherein the apparatus is part of a host channel adapter set up to support filtering.

26. The apparatus of claim 25, wherein the host channel adapter is set up to support filtering by using a Modify HCA verb to enable filtering in the host channel adapter.

28. The apparatus of claim 27, wherein the Modify QP  
15 verb identifies the filter value for each filter type  
enabled from filter types supported by a corresponding  
host channel adapter.

30. The apparatus of claim 21, wherein the means for identifying a queue pair based on the one or more filter values in the header of the data packet includes means for using a content addressable memory.